

## **February 1, 2012 Water Supply Forecasting Discussion**

Hello Everyone,

We've finished the February 1, 2012 Bulletin 120 (B120) and Water Supply Index (WSI) forecasts. The forecasts include observed conditions through the end of January.

The forecasts are posted at:

B120: <http://cdec.water.ca.gov/cgi-progs/iodir?s=b120>

WSI: <http://cdec.water.ca.gov/cgi-progs/iodir/wsi>.

### **Forecast Summary:**

The projected median April-July runoff in the major Sierra river basins ranges from 32 percent on the Cosumnes River to 79 percent on the McCloud River.

Forecasted median Water Year runoff ranges from 31 percent for the Cosumnes River to 66 percent on the Kern River.

In a stark contrast from water year 2011, water year 2012 has gotten off to an extremely dry start drawing comparisons to some of the driest years in our historical records. As such, the April-July runoff forecasts are below average for all the basins in the Bulletin 120. Of the 25 basins where April-July runoff forecasts are produced, nine are at or below 50 percent of their 50-year average, while only three are above 70 percent (the McCloud, Pit, and Inflow to Shasta)

The WSI forecast can be summarized as follows:

#### **Sacramento River Unimpaired Runoff Water Year Forecast**

(50 percent exceedance)  
normal)

#### **Sacramento Valley Index (SVI)**

(50 percent exceedance)

#### **San Joaquin Valley Index (SJI)**

(75 percent exceedance)

#### **9.4 MAF**

(51 percent of

**6.0**

(Dry)

**2.0**

(Critical)

The SVI has fallen into the 'Dry' water year classification as it has decreased from 6.9 to 6.0 since the January 1, 2012 WSI. The SJI remained the same.

### **Runoff:**

As a result of the dry start to 2012, unimpaired flows for the month of January remained well below average for all major Central Valley Rivers, continuing the trend from the end of 2011. Monthly inflow ranged from as low as 15 percent on the Cosumnes River to 72 percent on the Kern River at Isabella. Water year runoff totals through January stood at 41, 41, and 86 percent of average to date in the Sacramento River Region, San Joaquin River Region, and Tulare Lake Region, respectively. Near average flows in the Kern River have increased the percent of average in the Tulare Lake region.

### **Precipitation:**

In October, water year 2012 started where water year 2011 had left off. Precipitation in both the Northern Sierra Nevada and the San Joaquin region were above average in October (130 percent for the Northern Sierra 8-Stations, 125 percent for the San Joaquin 5-Stations). However, conditions quickly turned dry and have remained so pretty much since then. The

Northern Sierra 8-Station Precipitation index accumulated below normal precipitation in November (43 percent), December (4 percent), and January (84 percent). December's total of 0.3 inches was the second driest December total on record, surpassing only the 0.07 inches of December 1989. The San Joaquin Valley has not fared any better. The San Joaquin 5-Station index accumulated below normal precipitation in November (32 percent), December (0 percent), and January (80 percent). December's 0 inches of accumulated precipitation ties it for the driest December on record with December of 1989. For additional perspective, the 7.6 inches of precipitation accumulated in the San Joaquin 5-Stations during the November through January period is equal to the amount of precipitation that would normally be accumulated in January alone.

The water year to date precipitation totals for the Northern Sierra 8-Station index was 14.5 inches (54 percent of average to date) on February 1, 2012. This amounts to only 29 percent of the water year average of 50 inches. For comparison, the Northern Sierra had received 34 inches of precipitation (20 inches more than this year) by February 1, 2011. For the San Joaquin 5-Station index, the water year to date total was 10.1 inches (49 percent of average to date) on February 1, 2012. This amounts to only 25 percent of the water year average of 40.8 inches. By this time last year, the San Joaquin 5-Station index had accumulated 35.0 inches of precipitation – a remarkable difference from one year to the next.

At the conclusion of the first four months of the water year, precipitation (based on all available reporting gauges per basin) in the Sacramento River Region was 53 percent of average, the San Joaquin River Region was 49 percent of average, and the Tulare Lake Region was 60 percent of average. Statewide, water year cumulative precipitation through January was 59 percent of average.

### **Snowpack:**

Snowpack is monitored using two complementary methods: automatic snow sensor (or "pillow") readings and manual snow course measurements. The snow sensors give us a daily snapshot of snow conditions while the manual snow course measurements provide a monthly verification of snow conditions in locations where snow has been measured in the same manner as far back as 100 years.

As noted in the precipitation discussion above, the fall and early winter has been characterized by anomalously dry conditions. To better demonstrate how dry it has been, consider the following. On November 20, 2011, the automatic snow sensors showed 2 inches of snow water content statewide. That value remained unchanged until January 21, 2012 when a good winter storm pushed into California and added 4 additional inches of snow water content over a couple of days. Historically, the December through February period is the Sierra Nevada's wettest period; on average accounting for about half of the expected water year's precipitation. This year, the state went through a full 61 days of this period before any appreciable water content was added to the statewide snow pack.

On February 1, snow sensors recorded a snow pack that was 39 percent of average in the Northern Sierra, 32 percent of average in the Central Sierra, and 41 percent of average in the Southern Sierra. Statewide, snow water equivalent based on snow pillow data was 37 percent of the historical February 1 average and 23 percent of the historical statewide April 1 average.

Measurements from the snow courses this month revealed comparable snow pack conditions. Measurements in the Sacramento River Valley watersheds recorded a snow pack that is 28 percent of the historical February 1 average. Measurements in the San Joaquin Valley

watersheds indicated a snow pack that is 31 percent of the February 1 average while the snow pack for the Tulare Lake region was 47 percent of the February 1 average. Statewide the snow pack was measured at 35 percent of the February 1 average and 22 percent of the historical April 1 average.

#### **Weather and Climate Outlook:**

A mid-January winter storm roared into California and brought a much needed boost to a Sierra snowpack that was nearing historic lows. Since that storm, California has been predominantly dry except for a few short periods of light rain or snow. For the next six days, the weather outlook is mostly dry with the possibility of a weak system coming into the Sierra Nevada on Sunday. Freezing elevations during this time will range from 10,000 feet down to 2,000 feet by the end of the period. For the next six to fourteen days, the weather outlook is predominantly cool and dry with below normal temperatures and precipitation expected across all of California. It appears that the predominantly dry conditions will persist into mid-February.

The NWS Climate Prediction Center's (CPC) 30-day outlook for February, last updated on January 31, 2012, suggests equal chances of above or below normal temperatures for all of California. The same outlook calls for increased chances of below normal precipitation for the entire state.

The CPC's three month outlook (February thru April) was last updated on January 19, 2012. This outlook suggests increased chances of below normal temperatures for the North Coast and Trinity Alps but equal chances of above or below normal temperatures elsewhere in the state. For precipitation, this same outlook calls for increased chances of above normal precipitation for the North Coast and portions of the Trinity Alps, increased chances of below normal precipitation for the lower two-thirds of the state (including the Central and Southern Sierra Nevada), and equal chances of above or below normal precipitation elsewhere (including the Northern Sierra Nevada).

#### **Next Update:**

A Bulletin 120 Update for conditions on February 14, 2012 will be available Thursday, February 16. The March 1, 2012 Bulletin 120 forecast will be available on March 8, 2012.

If you have any questions regarding this forecast, please contact a member of the Snow Surveys staff. We are happy to help.

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#### **Important Links**

##### **Full Natural Flow Data:**

Daily FNF

[http://cdec.water.ca.gov/cgi-progs/snowsurvey\\_ro/FNF](http://cdec.water.ca.gov/cgi-progs/snowsurvey_ro/FNF)

Monthly FNF

[http://cdec.water.ca.gov/cgi-progs/snowsurvey\\_ro/FNFSUM](http://cdec.water.ca.gov/cgi-progs/snowsurvey_ro/FNFSUM)

Seasonal FNF

[http://cdec.water.ca.gov/cgi-progs/snowsurvey\\_ro/FLOWOUT](http://cdec.water.ca.gov/cgi-progs/snowsurvey_ro/FLOWOUT)

**Precipitation Data:**

Latest Northern Sierra 8-Station Precipitation Index

<http://cdec.water.ca.gov/cgi-progs/queryDaily?s=8SI&d=today>

Northern Sierra 8-Station Precipitation Tabulation Table

[http://cdec.water.ca.gov/cgi-progs/products/8-Stations\\_Tab.pdf](http://cdec.water.ca.gov/cgi-progs/products/8-Stations_Tab.pdf)

Latest San Joaquin 5-Station Precipitation Index

<http://cdec.water.ca.gov/cgi-progs/queryDaily?s=5SI&d=today>

San Joaquin 5-Station Precipitation Tabulation Table

[http://cdec.water.ca.gov/cgi-progs/products/5-Stations\\_Tab.pdf](http://cdec.water.ca.gov/cgi-progs/products/5-Stations_Tab.pdf)

2010 WY Precipitation Summary

<http://cdec.water.ca.gov/cgi-progs/precip/PRECIPSUM>

**Snow Data:**

Latest Snow Sensor Report

<http://cdec.water.ca.gov/cgi-progs/snow/PAGE6>

Latest Statewide Summary of Snow Water Equivalents

<http://cdec.water.ca.gov/cgi-progs/snow/DLYSWEQ>

Monthly Snow Course Report

<http://cdec.water.ca.gov/cgi-progs/snow/COURSES>

**Extended Regional Forecasts:**

California Nevada River Forecast Center 6 Day QPF and Snow Level Forecast

<http://www.cnrfc.noaa.gov/awipsProducts/RNOHD6RSA.php>

Climate Prediction Center One-Month Outlook Forecasts

<http://www.cpc.noaa.gov/products/predictions/30day/>

Climate Prediction Center Three-Month Outlook Forecasts

<http://www.cpc.noaa.gov/products/predictions/90day/>

**Drought Information:**

California Drought Information

<http://www.water.ca.gov/drought/>

U.S. Seasonal Drought Outlook

[http://www.cpc.ncep.noaa.gov/products/expert\\_assessment/seasonal\\_drought.html](http://www.cpc.ncep.noaa.gov/products/expert_assessment/seasonal_drought.html)